

a cryogenically cold coil support attached the pair of cryogenically cold coil windings to form an assembly of the coil support and coil windings, and said assembly being separated from said rotor core by a gap.

### **REMARKS**

Reconsideration of this application is respectfully requested. The allowance of claims 16-21 and the withdrawal of the prior rejections are appreciated. This amendment after final rejection should be entered because claim 1 as revised clearly places all claims in good condition for allowance.

The rejection of claims 1-4, 9, 10, 12 and 13 as being anticipated by Herd et al (U.S. Patent No. 5,672,921) is traversed. Independent claim 1 has been amended to require a cold coil support that elevates a cold super-conducting coil windings above a warm rotor. The amended claim also requires a thermally insulating gap between the rotor core and assembly of coil windings and coil support. In particular, claim 1 has been amended to require the core to be warm and the coil support and coil winding to be cryogenically cold, and to include a limitation for:

"a cryogenically cold coil support attached the pair of cryogenically cold coil windings to form an assembly of the coil support and coil windings, and said assembly being elevated away from said rotor core by a gap."

In contrast to claim 1, Herd discloses a rotor core that directly contacts and supports a coil winding assembly. The coil winding assembly in Herd includes a vacuum enclosure (34) that thermally isolates the coil winding (28) from the core. A

support is needed between Herd's cold coil and warm vacuum enclosure. This support must carry the fragile coil without transferring heat to the coil. Further, the support must minimize heat conduction from the core to the winding.

The present invention has a cold coil support system and thereby avoids the need to maintain a vacuum between the coil support and the coils. The present invention allows the coil support to be directly coupled to the fragile superconducting coil. Herd does not render obvious the claimed invention.

The rejection of claim 5 as being obvious over Herd in view of Driscoll et al. (U.S. Patent 6,169,353) is traversed for the reasons discussed above with respect to Herd. Driscoll does not teach or suggest a coil winding extending beyond an end of a rotor core. Driscoll also does not suggest a cold coil support and cold coil assembly that is thermally separated from a warm rotor core. Herd and Driscoll do not render obvious a superconducting coil winding having an end section extending beyond the end of a rotor core.

The rejection of dependent claims 14 and 15 as being obvious over Herd in view of Laskaris '248 (U.S. Patent No. 4,385,248) is traversed for substantially the same reasons as stated above with respect to Herd. Laskaris '248 does not suggest modifying Herd such that the coil support be cold or thermally isolated from the rotor core. Accordingly, claims 14 and 15 are not obvious and the rejection should be withdrawn.

The rejection of claims 6 and 8 as being obvious over Herd in view of Ueda (U.S. Patent No. 4,642,503) is traversed for the reasons stated above with respect to Herd.

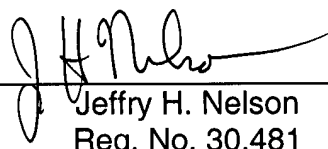
Ueda in Figures 3, 8, 9, 12, 15, 16, 20 and 23 show a rotor core having channels to support the end section of coil windings. Ueda does not disclose or suggest a cold coil support and coil assembly that is thermally isolated from a rotor core. Claims 6 and 8 (which depend on modified claim 1) define subject matter that would not have been rendered obvious over the combination of Herd and Ueda which in combination disclose a rotor core having channels for the entirety (including end sections) of the coil windings.

All claims are in good condition for allowance. If any small matter remains outstanding, the Examiner is requested to telephone applicants' attorney. Prompt reconsideration and allowance of this application is requested.

Attached hereto is a marked-up version of the changes made to the specification and claim(s) by the current amendment. The attached page(s) is captioned "**Version With Markings To Show Changes Made.**"

Respectfully submitted,

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS**

1. (Twice Amended) A rotor for a synchronous machine comprising:  
a warm rotor core having a rotor axis;  
a pair of cryogenically cold super-conducting coil windings mounted on the rotor core, each of said coil windings in a respective plane that is parallel to and offset from the rotor axis, and each of said coil windings having an end section extending beyond an end of the rotor core, and  
a cryogenically cold coil support attached the pair of cryogenically cold coil windings to form an assembly of the coil support and coil windings, and said assembly being separated from said rotor core by a gap.